

ASYNCHRONOUS RECEIVE AND TRANSMIT PACKET CROSSPOINT

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5 ABSTRACT OF THE DISCLOSURE

10 A packet crosspoint that cross-connects asynchronous UBR (unspecified bit rate)
packet traffic received at n inputs to any of n outputs is disclosed that buffers the packets at
both the n input ports as well as the n output ports. The crosspoint works with an arbiter to
control the number of packets being received at the input ports of the cross-connect from
15 traffic sources coupled thereto. This is accomplished by monitoring the number of packets
waiting in buffers in the output ports, as well as the number of other packets which the arbiter
has already granted for transmission to the input ports of the cross-connect, but which have
not as of yet been received in the output queue of the destination output port. This
mechanism serves to keep the input port buffer from backing up to avoid "head-of-line"
20 blocking problems. The number of grants issued by an arbiter can also be throttled based on
back-pressure signals provided by the input buffers in the event that they start to back up to
avoid losing packets when input buffers overflow. An audit mechanism is included for
ensuring that output port grant counters do not drift upward based on the fact that some
granted packets are lost in the system. Finally, back-pressure may also be asserted by the
destination for traffic output from the cross-connect to slow down the output of cross-
connected traffic in the event that they are issued faster than the traffic receiver can process
them.